



Coccygectomy in the treatment of coccygodynia

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Fourteen patients, all female, who underwent coccygectomy for coccygodynia resistant to conservative treatment, were reviewed after a mean follow-up period of 30 months ; 5 had a very good result and 7 had a good result. No re-operations were performed. Coccygodynia can be a real problem in women and total coccygectomy is an acceptable operation for coccygodynia not responding to conservative treatment.

INTRODUCTION

In coccygodynia pain is most severe in the sitting and standing position (2, 5). The aetiology of coccygodynia often remains obscure, partially due to the complex structure of the sacrococcygeal region. It is sometimes related to injury following direct trauma, childbirth or spinal surgery. Other rare causes include chordoma, giant cell tumours, intraductal schwannoma, perineural cysts, intraosseous lipomas or pericoccygeal glomus bodies (1). Idiopathic coccygodynia has been attributed to a variety of pathological conditions, including functional neurosis, spasm of the pelvic floor muscles, anomalies of the soft tissues in the midsacral region, chronic inflammation of an adventitious coccygeal bursa, lumbar disc disease, arachnoiditis of the lower sacral nerve roots, post-traumatic osteoarthritis of the sacrococcygeal joint, and ununited fractures (9).

The coccyx is more prominent in females than in males and coccygodynia is about five times more

frequent in women (4). It has been postulated that women are more susceptible to coccygodynia because the female pelvis is anatomically more prominent at the sacral and coccygeal level or because they are exposed to trauma during childbirth (3).

Three surgical procedures have been used in the treatment of idiopathic coccygodynia. Subcutaneous tenotomy of the coccygeal ligaments, first performed by Simpson in 1850, was apparently unsuccessful ; partial or total coccygectomy and bilateral rhizotomy have been performed for several decades.

This study reports the results of partial or total coccygectomy in patients suffering from coccygodynia resistant to conservative treatment.

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Table I. — Coccyx configuration according to Postacchini and Massobrio, and classification of our patients

Type	Definition	Number of patients
I	Coccyx is slightly curved forward	1
II	Curve is more marked and the coccyx points straight forward	5
III	Sharp forward angulation	6
IV	Subluxation in the sacrococcygeal or intercoccygeal joints	2

Table II. — Results after surgery

Results	Number of patients
Excellent	5
Good	7
Fair	1
Poor	1

PATIENTS AND METHODS

Between 1998 and 2003, 14 total coccygectomies were performed in our department. All patients were women. Their average age was 28 years (range, 17-39 years). Patients who failed to improve with conservative treatment were elected for surgery. The probable aetiology of coccygodynia was direct trauma in 8, childbirth in 3 and idiopathic in 3. The anatomical configuration was determined on anteroposterior and lateral radiographs of the sacrum and coccyx before surgery, and the type of coccyx was evaluated following the classification of Postacchini and Massobrio (table I). In 1983, these authors defined four anatomical coccyx types according to shape and size (9). A type I coccyx is slightly curved forward (1 case). Type II has a more marked curve and points forward (5 cases). Type III is characterised by a sharp forward angulation (6 cases), and type IV by subluxation in the sacrococcygeal or intercoccygeal joint (2 cases).

Conservative treatment before surgery consisting of anti-inflammatory medication, digital manipulation, alteration in sitting position, local steroid injections, hot sitting baths, was tried in the majority of cases and patients resistant to conservative treatment were elected to undergo surgery.

Surgery was performed in the prone position under general anaesthesia. A longitudinal incision was used; total resection of the coccyx was performed in 11 and

partial resection in 3 of the patients. The coccyx tip was first dissected, soft tissues were resected subperiosteally up to the level of the sacrococcygeal joint and the distal sacral ridge was then smoothed with a rasp. The surgical incision healed in 10 days in all patients.

All patients were reviewed after a mean follow-up time of 30 months (range: 4 to 48 months). Clinical results were assessed, according to the criteria described by Bayne (1). Complete relief of pain with no change in lifestyle or occupation graded as excellent. A good result implied occasional discomfort after prolonged sitting and minimal discomfort on digital examination. Analgesics were not required and there was again no change in lifestyle or occupation. A fair result implied pain or discomfort on sitting for short period of times and considerable pain on digital examination. Analgesics were occasionally required but changes in lifestyle or occupation were fairly minimal. A poor rating implied no improvement following surgery with the continuous need for analgesics.

RESULTS

No major surgical complications were encountered. Two cases of superficial infection were treated with oral antibiotics. The results were excellent or good in 85%. In our series we report 5 excellent, 7 good, 1 fair and 1 poor result (table II). The patient who had a poor result after coccygectomy had spinal surgery for a herniated disk and her pain finally resolved.

DISCUSSION

Traumatic coccygodynia causes symptoms similar to pericoccygeal soft tissue lesions, pelvic floor muscle spasms, referred pain from lumbar pathology, arachnoiditis of the sacral nerve roots, local post-traumatic lesions, somatisation, pain caused by osteoarthritis or subluxation in the sacrococcygeal joint (3). Coccygodynia should further be differentiated from pain caused by a variety of perianal pathologies such as haemorrhoids, anal fissures, perianal fistulas, anorectal abscess, and pilonidal sinuses.

According to Maigne *et al* the most common source of coccygodynia is the coccygeal intervertebral disc or joint (5). Maigne *et al* reported that pain is more severe in the sitting position (5). In 8 of

30 patients, pain was caused by posterior subluxation of the coccyx, visible only on the x-ray films taken in the sitting position.

Postacchini and Massobrio found that Type II, III or IV are more prone to become painful than type I (9). Our study confirmed this. In the literature, coccygodynia is more frequent in women (8). In our study, all patients were young women.

Coccygodynia can be treated conservatively or surgically. Anti-inflammatory medication, hot sitting baths, digital manipulation, alteration in sitting position, sitting aids (donut pillow), local steroid injections, sacral rhizotomy and radiotherapy can be applied step by step (3, 6, 9, 11). It has been reported that symptoms may resolve after several months with conservative treatment. Partial or total coccygectomy is the main surgical procedure. Nine of the twelve (75%) patients in Pennekamp's series showed marked improvement after excision of the coccyx (7); the best results were obtained in traumatic coccygodynia (7). After coccygectomy Ramsey *et al* (10) had good results, Helberg *et al* (4) and Postacchini and Massobrio (9) had respectively over 88% and 90% good results.

After several weeks of unsuccessful conservative treatment we performed partial or total coccygectomy and 85% of the patients (n = 12) were satisfied with the results. The high satisfaction level in this series can be explained by the fact that the majority of our cases were post traumatic and all were treated conservatively before surgery.

In conclusion, coccygodynia is a discomforting and disabling problem, especially in women.

Differential diagnosis should be made with a variety of regional pathologies and when conservative modalities are exhausted, surgery can bring relief in the majority of cases.

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